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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
DIRECTORATE OF REQUIREMENTS

GOR NO. 80

DATE 15 March 1955

REVISED Sep 26, 1958

~~(S)~~ GENERAL OPERATIONAL REQUIREMENT FOR A RECONNAISSANCE STELLITE WEAPON SYSTEM

This GOR supersedes GOR No. 80, dated 15 March 1955, for (S) A Strategic Reconnaissance Satellite Weapon System which should be removed from the file and destroyed.

I. PURPOSE.

This General Operational Requirement is in support of the Intelligence and Reconnaissance Development Planning Objective 1960-1970, and the National Intelligence Objectives of the United States. It is desired that development action following this requirement result in a satellite weapon system capable of providing reconnaissance of the earth. ~~(S)~~

II. OPERATIONAL MISSION.

A. The operational mission of this weapon system is to provide aerial reconnaissance world wide and/or of preselected areas of the earth for:

1. Instantaneous warning of ballistic missile attack.
2. Collection of intelligence data to satisfy national intelligence objectives.
3. Support of U.S. emergency war plans.
4. An aid in determining the intentions of a potential enemy and the status of his warmaking capabilities.

B. Aerial reconnaissance will be performed by photographic, ferret, infrared, and other sensor systems as necessary to collect data on intelligence objectives which will be designated on the basis of priority requirements.

III. ENEMY EFFECTIVENESS ESTIMATES.

Enemy capabilities are contained in the "GOR Intelligence Annex." (U)

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IV. FRIENDLY ENVIRONMENT. ~~Secret~~

A. General

It is desired that satellites be launched from the continental limits of the United States and monitored from ground stations in the Western Hemisphere. ~~(S)~~

B. Ground Based Facilities

1. A satellite computation and control center is required.

2. Acquisition and tracking sites are required to receive collected data from the satellite and to relay command messages to the orbiting vehicle. The facilities will be designed and located to receive the data from satellites with minimum delay or degradation and to minimize enemy interception of or interference with the space to ground transmission.

3. A data processing subsystem is required for effective operational control, and for processing, screening, storing and transmission to other agencies via the USAF Communications Support System 456L (GOR 129) to the USAF Intelligence Data Handling System 438L (GOR 149 and 149-1).

V. OPERATIONAL EMPLOYMENT.

A. Satellites will be employed to acquire or confirm data concerning locations, capabilities and vulnerability of manned and unmanned strike forces, defense systems, technological developments, meteorology, topography and geography. They will be employed singly or in numbers to insure desired coverage of a selected area in a given period of time. The frequency or density of coverage required will be determined by correlation of data acquired from a variety of sensors. Separate or combined configurations of the photographic, electronic, infrared or other sensors will be employed to provide the desired coverage.

B. These sensors will be employed to acquire broad coverage within which areas or subjects of critical interest will be identified. When a specific objective that merits scrutiny is identified, frequent, or perhaps for brief periods, continuous coverage on the relatively confined specific objective may be directed.

C. Each satellite may require the capability of in-flight processing of the data collected and transmission to the appropriate ground receiving stations. ~~(S)~~

VI. LIMITATIONS OF PRESENT SYSTEMS.

Present reconnaissance systems are limited as follows:

A. Inability to provide continuous surveillance. ~~(C)~~

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B. Vulnerability to detection. ~~(C)~~

C. Vulnerability to countermeasures. ~~(C)~~

VII. OPERATIONAL PERFORMANCE.

A. Airframe and Propulsion Subsystems

1. The satellite airframe should be designed to insure compatibility with the load carrying capability of ICBM boosters. ~~(S)~~

2. The propulsion system visualized will use the ICBM boosters for the first stage propulsion, and a second stage engine to furnish additional thrust to achieve orbital speeds. ~~(S)~~

B. Auxiliary Power Subsystem

1. An auxiliary power subsystem is required in the satellite to supply electrical power to the various airborne components from just prior to launch until the end of the satellite's reconnaissance lifetime. These components must be compatible with available ground power during warm-up, testing and check-out on the launch stand. ~~(S)~~

C. Guidance and Control Subsystem

1. This subsystem will be designed to provide guidance and control necessary to place the satellite on the required orbit. ~~(S)~~

2. A method of self-stabilization in attitude must be provided when this vehicle is on orbit. ~~(S)~~

3. Appropriate items of ground support equipment necessary to service, test and calibrate the elements of this sub-system are required. ~~(S)~~

D. Choice of Orbit and Inclination Angle

1. The altitude and inclination angle of the satellite should be selective, depending upon the intelligence requirements of the specific mission. ~~(S)~~

E. Launch Facilities

1. The satellite launching facility will normally be a fixed, permanent type installation. ~~(S)~~

2. Satellite launching facilities should utilize to the maxium extent, ground support equipments designed for current ballistic missiles. ~~(S)~~

F. Communications Network

1. A ground-space communications link is required to transmit collected data from the orbiting satellite, and to transmit command instructions from the acquisition and tracking station to the satellite.

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2. A point-to-point link is required to relay data from the acquisition and tracking station to the data processing center, and to relay command instructions from the control center to the acquisition and tracking station.

G. Data Processing Facilities

1. Development of a suitable data handling subsystem is required by this weapon system and must be available by the time a potential exists for the actual collection of intelligence information.

2. In order to facilitate dissemination of the processed intelligence information from the intelligence center to other using agencies, the data handling subsystem developed for this weapon system should be as compatible as possible with system 438L - Intelligence Data Handling System;

H. Self-Destruction

Provisions for self-destruction, to the extent that the satellite is removed from orbit, will be incorporated into each satellite. Incorporation of this feature should not delay attainment of an early operational capability.

I. Reconnaissance Sensing Systems Requirements

The reconnaissance sub-systems performance requirements are detailed in addenda to this General Operational Requirement according to the following numbering system.

a. -Visual - GOR NO. 80-1
b. Electronic - GOR NO. 80-2
c. Infrared - GOR NO. 80-3
d. Mapping & Charting - GOR NO. 80-4 ~~(C)~~

VIII. GENERAL CONSIDERATIONS.

1. Development of this system will be on an expedited basis to provide an operational capability at the earliest possible date. ~~(S)~~

2. Consideration should be given to the use of a recoverable satellite in order to achieve maximum accuracy, information content, reliability of receipt of collected data, and reuse where economically feasible.

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3. Consideration should be given to the security against enemy interrogation of the orbiting satellite and the survivability of long life satellites.

IX. AVAILABILITY.

The earliest versions of this system should be available by mid 1960 and a full operational capability must be available by 1965.

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